

## Description of a new species of *Sphaerosyllis* from Australia and New Zealand (Polychaeta: Syllidae: Exogoninae)

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**Abstract.**—Examination of several specimens of the genus *Sphaerosyllis* from Australia, loaned by the Australian Museum, as well as specimens of this genus from New Zealand given by Dr. Nathan W. Riser, revealed the presence of a new species described in this paper as *Sphaerosyllis nathani*. This new species is characterized by having very long dorsal cirri and very long papillae on the dorsal and ventral surfaces.

*Sphaerosyllis* is one of the larger and more difficult genera of the Subfamily Exogoninae. In Australia, contributions to the knowledge of this genus have been made by Augener (1913, 1927), Haswell (1920), and, more recently, by Hutchings & Rainer (1979, 1980), Hutchings & Murray (1984) and Hartmann-Schröder, who described and reported several species in her papers of 1979, 1980, 1981, 1982, 1983, 1984, 1985, 1986, 1987, 1989, 1990, and 1991. In New Zealand, contributions to the knowledge of *Sphaerosyllis* were made by Augener (1924a, 1924b) and Riser (1985, 1991). The genus was revised by San Martín (1984a, 1984b), who reported about 44 species, but many other species have been described since then. An evaluation of the systematics of this genus was made by Riser (1991).

A study of several unidentified specimens of the genus *Sphaerosyllis*, deposited in the Australian Museum, revealed two specimens belonging to an undescribed species. Another specimen of the same new species was found amidst a collection of *Sphaerosyllis kerguelensis* from New Zealand, donated to us by Dr. Nathan W. Riser. We describe and discuss here, the new species.

The specimens are preserved in 70% ethanol. Observations and measurements were made using interference contrast optics

(Nomarsky). Drawings were made with a "camera lucida". The specimens are deposited in the polychaete collection of the Australian Museum, Sidney (AM).

Family Syllidae Grube, 1850

Subfamily Exogoninae Rioja, 1925

Genus *Sphaerosyllis* Claparède, 1863

Subgenus *Prosphaerosyllis* San Martín,  
1984

*Sphaerosyllis* (*Prosphaerosyllis*) *nathani*,  
new species

Fig. 1

**Material examined.**—Holotype (W22146) from 300 m NE of Green Point, Hawkesbury River (33°34'S–151°13.5'E), NSW, Australia, 5 m depth, sandy mud, A. R. Jones and A. Murray coll., Hawkesbury Estuary Study 1977–84. Paratype 1 (W23142) from reef S of Lucas Island (15°16'S–124°29'E), Western Australia, P. Hutchings coll. Paratype 2 (W23483) from Kaikoura, New Zealand, holdfast of *Lessonia*, N. W. Riser coll.

**Description.**—Holotype complete specimen, in good condition, 2.1 mm long, 0.22 mm wide, with 23 setigers. Paratype 1 anterior fragment. Paratype 2 complete specimen, 2.5 mm long, 0.24 mm wide, with 28 setigers. Body small, slender, without color markings. Prostomium rectangular, partially

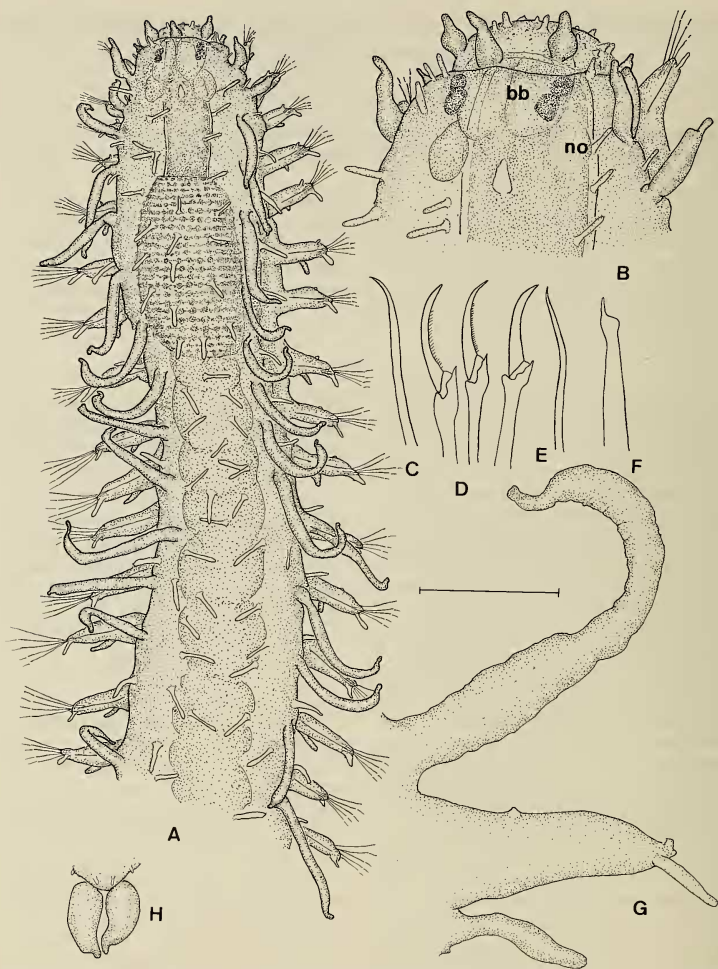


Fig. 1. *Sphaerosyllis nathani* new species. Holotype. A, anterior and midbody, dorsal view. B, detail of anterior end (bb: bilobed brain; no: nuchal organ). C, dorsal simple seta. D, compound setae. E, ventral simple seta. F, aciculum. G, parapodium of midbody, posterior view. H, pygidium (Paratype 2). Scale.—A, H: 0.18 mm. B: 98  $\mu$ m. C–F: 20  $\mu$ m. G: 48  $\mu$ m.

covered by peristomium; four large eyes in rectangular arrangement, close to each other on each side and two small anterior eyespots (only seen on paratypes); three short antennae, each with bulbous base and short tip. Palps fused to prostomium, broad and short, ventrally folded, bearing several papillae. Peristomium short; tentacular cirri similar in shape to antennae, but much smaller (Fig. 1A, B). Dorsum with little debris; dorsal papillae long, thin, arranged in three dorsal irregular rows; each segment bearing solitary papillae dorsolaterally between dorsal cirri; as result there are five papillae visible dorsally on each segment (Fig. 1A). Ventral side with long papillae, similar to those of dorsum, also arranged on five irregular longitudinal rows. Dorsal cirri on all setigers, those of anterior segments long, similar in length to parapodial lobes (Fig. 1A, B), those of remaining segments longer than parapodial lobes (Fig. 1A, G), but somewhat shorter toward far posterior end of body. Ventral cirri relatively long, digitiform, shorter than parapodial lobes. Parapodial lobes elongated, conical, each with small anterior papilla, inconspicuous presetal papilla and very long postsetal papilla (Fig. 1A, G). Parapodium with solitary dorsal simple seta thin, smooth, curved, present from setiger 1 (Fig. 1C); solitary ventral simple seta similar, but thinner, present only on far posterior parapodia (Fig. 1E). Parapodia each with four compound setae; setae similar throughout, heteromorphic, with blades unidentate and somewhat falciform; dorsal blades with short spines on cutting margin, ventral blades smooth (Fig. 1D); all blades about 16  $\mu$ m long. Solitary aciculum tapered and, with thin, filiform tip (Fig. 1F). Pygidium semi-circular, with two long, wide anal cirri and two dorsal and two lateral papillae (Fig. 1H). Bilobed brain and nuchal organs (cf. Riser 1991) easily visible (Fig. 1A, B). Pharynx partially everted, extending through four segments, shorter than proventriculus; pharyngeal tooth well back from margin, anterior to middle of pharynx (Fig.

1A, B). Proventriculus long and wide, through three and a half segments, with about 25 muscle-cell rows (Fig. 1A).

**Remarks.**—The dorsal cirri of the new species are very long and slender, distinctly different from the typical cirri of the genus, which have a bulbous base and a short thin tip. The holotype of *Sphaerosyllis nathani* was labeled *Pionosyllis* sp. in the collections of the Australian Museum. However, several species of the group of species defined by San Martín (1984b) as subgenus *Prosphaerosyllis* have the cirri formed into a more or less elongate bulbous proximal part and a retractile, short cylindrical distal part, for example *S. xarifae* Hartmann-Schröder 1960, *S. riseri* Perkins 1981, etc. The dorsal cirri of *S. nathani* are an extreme case of this tendency; the major part of the dorsal cirrus is formed by the proximal part, whereas the distal part is a non-retractile and distal narrowing. In contrast, *S. giandoi* Somaschini & San Martín 1994, has very small, papilliform dorsal cirri, being the opposite extreme form of the dorsal cirri.

The most similar species to *Sphaerosyllis nathani* is *S. bilineata* Kudenov & Harris 1995, described from California; this species also has elongate dorsal cirri, long dorsal papillae and body and setae of similar shape. However, *S. bilineata* has differently shaped dorsal cirri, which are somewhat thickened basally, proportionally shorter than those of *S. nathani*. The dorsal papillae of *S. bilineata* are arranged in two longitudinal dorsal rows and are alternating long and short, whereas the papillae of *S. nathani* are all long and arranged in three irregular dorsal longitudinal rows and two dorsolateral ones.

*Sphaerosyllis longipapillata* Hartmann-Schröder 1979, from Australia, also has long dorsal papillae, but the dorsal cirri of that species are much shorter and have the shape typical for those of most other members of the genus.

**Etymology.**—The species is named in honor of Dr. Nathan W. Riser, in acknowledgment of his important contributions to

the knowledge of this genus, and in appreciation for the help given to us in this and other papers.

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